

310 CMR 27.00: UNDERGROUND INJECTION CONTROL REGULATIONS

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27.01: Purpose and Authority

The purpose of 310 CMR 27.00 is to protect underground sources of drinking water by regulating the underground injection of hazardous wastes, fluids used for extraction of minerals, oil, and energy and any other fluids having potential to contaminate groundwater as required by the Federal Safe Drinking Water Act, 42 U.S.C. §§ 300h-300h-8. 310 CMR 27.00 is not intended to apply to the drilling, development, and rehabilitation of drinking water supply wells, water production wells, or monitoring wells.

310 CMR 27.00 is promulgated pursuant to authority conferred by M.G.L. c. 21, § 27, M.G.L. c. 21A, § 2(28), and M.G.L. c. 111, § 160. Specific sections of 310 CMR 27.00 should be read together with 310 CMR 15.000, 314 CMR 5.00 and 314 CMR 6.00 which contains relevant information.

27.02: Definitions

As used in 310 CMR 27.00, the terms below shall have the following meanings:

Aquifer means a geological formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Cesspool means a subsurface pit with open-jointed linings or holes in the bottom and/or sidewalls into which raw sewage is discharged, the liquid portion of the sewage being disposed of by seeping or leaching into the surrounding soils, and the solids or sludge being retained in the pit. Cesspools are nonconforming systems pursuant to 310 CMR 15.000.

Closure means the act of securing a facility to prevent it from contaminating an underground source of drinking water, or from otherwise endangering the health of persons or the environment.

Commissioner means the Commissioner of the Department of Environmental Protection.

Department means the Massachusetts Department of Environmental Protection.

Dry Well means a subsurface pit with open-jointed lining or holes through which storm-water drainage from roofs, basement floors, foundations or other area seeps into the surrounding soil.

Exempt Aquifer means an aquifer or its portion that has been exempted from 310 CMR 27.00 in accordance with the procedures in 310 CMR 27.07.

Fluid means any material or substance that is capable of movement whether in a semisolid, liquid, sludge, gas, or any other physical state.

Formation means a body of rock characterized by a degree of lithologic homogeneity, which is prevailing, but not necessarily tabular and mappable on the earth's surface or traceable in the subsurface.

Formation Fluid means fluid present in a formation under natural conditions (as opposed to introduced fluids, such as drilling mud).

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Groundwater means all water that exists beneath the land surface in soils or geologic formations, specifically that part of the subsurface water in the saturated zone.

Hazardous Waste means hazardous waste as defined in M.G.L. c. 21C, § 2.

Improved Sinkhole means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface.

Injection means the emplacement of fluids into a formation by gravity or greater pressure through a well.

Injection Well means a well into which fluids are being introduced.

Local Approving Authority means the board of health or its authorized agent or an agent of a health district constituted pursuant to M.G.L. c. 111, § 27 acting on behalf of the applicable board of health.

Motor Vehicle Waste Disposal Well means a well that receives or has received fluids from vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealerships, specialty repair shop (e.g. transmission and muffler repair shops), or any facility that does vehicular repair work.

Nonpoint Source means a diffuse source that is not regulated as a point source and is normally associated with precipitation and runoff from the land or percolation.

On-site System or Disposal System or On-site Subsurface Sewage Disposal System or System means a system or series of systems for the treatment and disposal of sanitary sewage below the ground surface on a facility.

- (a) The standard components of a system are: a building sewer; a septic tank to retain solids and scum; a distribution box; a soil absorption system containing effluent distribution lines to distribute and treat septic tank effluent prior to discharge to appropriate subsurface soils; and a reserve area.
- (b) These terms also include tight tanks, shared systems and alternative systems. Unless the text of 310 CMR 15.000 indicates otherwise, these terms also include nonconforming systems as defined by 310 CMR 15.000.

Owner or Operator means the owner, operator of, or agent for any injection well subject to 310 CMR 27.00.

Person means any individual, partnership, corporation, firm, association, authority, trust, or group, including, but not limited to a city, town, county, district, the Commonwealth and its agencies, and the federal government.

Plugging means the act or process of stopping the flow of water, oil, or gas into or out of a formation through a borehole or well penetrating that formation.

Pollutant means any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter, in whatever form and whether originating at a point or major non-point source, which is or may be discharged, drained, or otherwise introduced into any sewage system, treatment works, or waters of the Commonwealth.

Sanitary Waste means any liquid or solid wastes originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned. Sources of these wastes may include single or multiple residences, hotels and motels, restaurants, bunkhouses, schools, ranger stations, crew quarters, guard stations, campgrounds, picnic grounds, day-use recreation areas, other commercial facilities, and industrial facilities provided the waste is not mixed with industrial waste.

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Soil Absorption System means a system of trenches, galleries, chambers, pits, field(s) or bed(s) together with effluent distribution lines and aggregate which is installed in appropriate soils to receive and distribute fluids below the surface of the ground.

Total Dissolved Solids means solids determined using *Standard Methods for the Examination of Water and Wastewater*, 20th edition, 1998, method 2540 C., "Total Dissolved Solids Dried at 180°C".

UIC means the Underground Injection Control program under Part C of the Safe Drinking Water Act (P.L. 95-523), as amended by P.L. 95-502; 42 USC

Underground Source of Drinking Water (USDW) means an aquifer or its portion which supplies any public water supply system; or which contains a sufficient quantity of groundwater to supply a public water supply system; and either currently supplies drinking water for human consumption, or contains less than 3000 mg/l milligrams/liter total dissolved solids; and which is not an exempt aquifer.

Well means a bored, drilled, or driven shaft, a dug hole, or seepage pit whose depth is greater than its largest surface dimension; or, an improved sinkhole; or, a soil absorption system.

Well Injection or Underground Injection means the subsurface emplacement of fluids through a well.

27.03: Classes of Injection Wells

(1) Class I.

- (a) wells used by generators of hazardous wastes or owners or operators of hazardous waste management facilities to inject fluids beneath the lowermost formation containing, within ¼ mile of the well bore, an underground source of drinking water;
- (b) other industrial or municipal wells which inject fluids beneath the lowermost formation containing, within ¼ mile of the well bore, an underground source of drinking water; and
- (c) radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within ¼ mile of the well bore.

(2) Class II. Wells used to inject fluids:

- (a) which are brought to the surface in connection with conventional oil or natural gas production and that may be commingled with wastewater from gas plants as an integral part of production operations, unless those waters are classified as hazardous waste at the time of injection;
- (b) for enhanced recovery of oil or natural gas; and
- (c) for storage of hydrocarbons that are liquid at standard temperature and pressure.

(3) Class III. Wells used for extraction of minerals including:

- (a) mining of sulfur by the Frasch process;
- (b) solution mining of minerals;
- (c) *in situ* combustion of fossil fuel; and
- (d) *in situ* production of uranium or other metals.

This category includes only *in situ* production from ore bodies which have not been conventionally mined. Solution mining of conventional mines (such as stopes leaching) is included in Class V.

(4) Class IV. Wells used by generators of hazardous wastes or of radioactive wastes by owners or operators of hazardous waste management facilities or by owners or operators of radioactive waste disposal sites, or by any other person to dispose of hazardous wastes or radioactive wastes into a formation which within ¼ mile of the well contains an underground source of drinking water.

(5) Class V. Injection wells not included in Classes I, II, III, or IV. Class V injection wells are further defined in 310 CMR 27.05.

27.04: Prohibited Activities

- (1) No person shall inject fluids into or through an injection well and no person shall construct, install, operate or maintain any Class I, II or III injection well, except as authorized by 310 CMR 27.00.
- (2) No person shall construct, install, operate or maintain a Class IV well that is not part of a response action being conducted or performed in compliance with the provisions of M.G.L. c. 21E and the Massachusetts Contingency Plan, 310 CMR 40.0000, or in use for the purpose of remediation at a release site, pursuant to the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601-9675, or pursuant to requirements and provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901-6992k.
- (3) No person shall inject or cause to be injected any fluid into a Class V well where that injection may cause or allow the movement of fluid containing any pollutant into underground sources of drinking water, and the presence of that pollutant causes or is likely to cause a violation of the Massachusetts Drinking Water Regulations, 310 CMR 22.00, or which in the opinion of the Department adversely affects or may adversely affect the health of persons.
- (4) A cesspool that has a design flow of 2000 gallons per day or greater is failing to protect public health and safety and the environment. Any owner of a cesspool with a design flow of 2000 gpd or greater shall:
  - (a) 30 days prior to upgrade of the cesspool notify the Department's Underground Injection Control program and the local approving authority on a "UIC Class V Well Pre-Closure Notification Form" available from the Department of the owner's intent to upgrade the cesspool by April 5, 2005; and
  - (b) by April 5, 2005, upgrade each cesspool, that has a design flow of 2000 gallons per day or greater, in accordance with 310 CMR 15.404 and 310 CMR 15.405 unless either:
    1. an earlier date for an upgrade is required by the Department or the local approving authority pursuant to 310 CMR 15.303(2); or
    2. an earlier date for an upgrade is required by 310 CMR 15.305.
- (5) No person shall construct, install, operate or maintain a Motor Vehicle Waste disposal well in the Commonwealth.

27.05: Authorized Activities

- (1) Any person may construct, install, operate or maintain a Class IV well in the conduct or performance of a response action in accordance with the provisions of M.G.L. c. 21E and the Massachusetts Contingency Plan, 310 CMR 40.0000, or for the purpose of remediation at a release site, pursuant to the provisions under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601-9675, or pursuant to requirements and provisions under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901-6992k.
- (2) Any person may construct, install, operate or maintain a Class V well in compliance with 310 CMR 27.00 and other applicable regulations and statutes including but not limited to M.G.L. c. 21 § 43; the Massachusetts Groundwater Discharge Permit Program, 314 CMR 5.00; the State Environmental Code, Title 5, 310 CMR 15.000; and the Massachusetts Uniform Plumbing Code, 248 CMR 2.00. Class V wells shall include but not be limited to the following:
  - (a) wells used to return to the ground the water used for heating or cooling energy in a heat exchanger;
  - (b) wells used to return water used for non-contact cooling to the ground;
  - (c) wells used to drain storm runoff into soil or bedrock;
  - (d) dry wells, seepage pits, and leaching pits used for the injection of waste fluids, other than sanitary waste;
  - (e) recharge wells used exclusively to replenish the water in an aquifer with uncontaminated water;
  - (f) salt water intrusion barrier wells used to inject uncontaminated water into a fresh water aquifer to prevent the intrusion of salt water into the fresh water;

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- (g) on-site subsurface sewage disposal systems;
- (h) subsidence control wells used to inject fluids to reduce or eliminate subsidence associated with the overdraft of groundwater;
- (i) geothermal disposal wells related to electrical generation and geothermal wells used for heating and aquaculture.

27.06: Protection

No person shall conduct an activity that is prohibited by 310 CMR 27.00 or that will endanger an aquifer or portion of an aquifer that meets the definition of an underground source of drinking water.

27.07: Exemption

- (1) Aquifer. The Department may exempt an aquifer from being an underground source of drinking water if, after notice and an opportunity for a public hearing the Department determines, subject to the approval of the U. S. Environmental Protection Agency, that the aquifer:
  - (a) currently does not serve as a source of public drinking water; and
  - (b) cannot now and will not in the future serve as a source of public drinking water because:
    - 1. it is used to produce mineral, hydrocarbon or geothermal energy;
    - 2. it is so contaminated that it would be economically or technologically impractical to render the water fit for human consumption;
    - 3. or contains more than 3000 mg/l Total Dissolved Solids and it is not reasonably expected to be used as a source of a public water system.
- (2) Groundwater Remediation Projects. Any injection into a Class IV or Class V injection well during a response action conducted or performed in accordance with the provisions of M.G.L. c. 21E and the Massachusetts Contingency Plan, 310 CMR 40.0000, or for the purpose of remediation at a release site, pursuant to the provisions under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601-9675, or pursuant to requirements and provisions under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901-6992k shall be exempt from:
  - (a) the prohibitions set forth in 310 CMR 27.04;
  - (b) the registration requirements set forth in 310 CMR 27.08;
  - (c) the corrective action requirements set forth in 310 CMR 27.10.
- (3) Registration. The following Class V injection wells are also exempt from the registration requirements of 310 CMR 27.08:
  - (a) on-site subsurface sewage disposal systems used solely for the disposal of sanitary sewage and regulated under 310 CMR 15.000.
  - (b) Class V injection wells permitted under 314 CMR 5.00.

27.08: Registration

- (1) Unless exempt pursuant to 310 CMR 27.07, each owner or operator of an existing Class V well shall notify the Department, on a form available from the Department, of the existence of any well meeting the definitions of Class V by January 1, 2003.
- (2) Each owner or operator of Class V injection well first put into use after September 13, 2002 shall register that injection well with the Department, on a form to be supplied by the Department, prior to commencing any injection, except as noted in 310 CMR 27.07.

27.09: Recordkeeping

Each owner and operator of an injection well shall make all existing records and information concerning the construction and operation of the well available to the Department upon request.

27.10: Corrective Action

(1) Compliance with M.G.L. c.21E. Each person performing a remedial activity as part of an injection well closure shall perform such activity in accordance with M.G.L. c. 21E and 310 CMR 40.0000, the Massachusetts Contingency Plan (MCP).

(2) Minimum Closure Requirements. Each owner or operator of a well that has been, or at any time may have been the subject of a violation of 310 CMR 27.04 shall at a minimum:

- (a) prevent fluids from entering the injection well until:
  - 1. the well is eliminated and all inlets into the drainage system leading to the injection well are permanently sealed; or
  - 2. the well is authorized by and permitted in accordance with the Groundwater Discharge Permit Program, 314 CMR 5.00; or
  - 3. the discharge is connected to a municipal sanitary sewer line in accordance with 314 CMR 7.00; or
  - 4. the discharge is connected to a tight tank provided the connection complies with all applicable Department regulations; or
  - 5. the discharge is addressed under a plan approved by the Department.
- (b) assess all soil, gravel, sludge, liquids or other materials adjacent to the injection well and all components of the drainage system leading to the injection well;
- (c) remove and dispose of any contaminated soil, gravel, sludge, liquids or other materials adjacent to the injection well and all contaminated components of the drainage system leading to the injection well in accordance with all federal, state and local requirements; and
- (d) permanently plug all inlets to the injection well, unless the injection well is closed accordance with 310 CMR 27.10(2)(a); and
- (e) 30 days prior to closure, submit to the Department a UIC Class V Well Pre-Closure Notification Form available from the Department; and
- (f) within seven days following completion of closure of the injection well, submit to the Department documentation of closure on a UIC Notification Form available from the Department; and
- (g) prior to sealing each floor drain, submit to the Department, a completed Form WS1, Notice of Plumbing Inspector Approval to Seal Floor Drain.

(3) Additional Closure Activities. If the Department determines that it is likely that there has been movement of injection or formation fluids into underground sources of drinking water or a release or threat of release of oil and/or hazardous material to the environment through an injection well the Department may require any additional closure measures it deems necessary for corrective action and preservation of the Underground Source of Drinking Water.

27.11: Severability

If any provision of 310 CMR 27.00 or the application thereof is held to be invalid, such invalidity shall not affect any provision of 310 CMR 27.00 not specifically held to be invalid.

REGULATORY AUTHORITY

310 CMR 27.00: M.G.L. c. 111, § 160; c. 21, § 27.